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ABSTRACT

This study examined the relationship between children's environmental concern and grade, sex, environmental attitudes and behaviors, perceived competencies, and manifest anxiety. A total of 138 children in grades 1, 3, and 5 were interviewed and completed scales that measured childhood concerns, attitudes toward the environment, self perception, manifest anxiety, and home environmental practices. It was found that children were moderately concerned about the environment, and that first-graders were more concerned about the environment than third- or fifth-graders. Environmental concern was positively correlated with environmental attitudes and behaviors for the fifth-graders. Multiple regression analysis revealed that children's environmental attitudes were a significant component of environmental concern, with more pro-environmental attitudes associated with greater environmental concern. Manifest anxiety was also found to be a component of environmental concern, with less anxiety being associated with greater concern. Children with greater environmental concern were somewhat more worried about environmental problems, and were able to generate more ways that they and their parents could help save the environment. (MDM)

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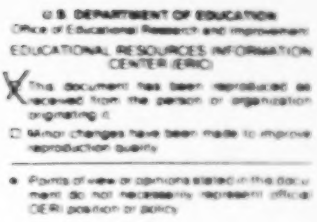
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Environmental Concern in School-Age Children

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Abstract

This study examined the relationship between children's (N = 138; grades 1, 3, and 5) environmental concern and grade, sex, environmental attitudes and behaviors, perceived competencies, and manifest anxiety. This study also assessed other common non-environmental concerns of school-age children, and examined where environmental concerns fit within the framework of common childhood concerns. Finally, this study examined differences between children evidencing the highest and lowest levels of environmental concern. It was found that children were moderately concerned about the environment, with environmental concern ranking in the middle of other common non-environmental concerns of children. No significant sex differences in environmental concern were found. It was predicted that older children would be more concerned about the environment. This prediction was not supported. First graders were significantly more concerned about the environment than third or fifth graders. It was predicted that environmental concern would be positively correlated with environmental attitudes and behaviors. These predictions were supported for fifth grade girls, but not for any other groups. It was also predicted that environmental concern would be positively correlated with perceived competencies. It was found that environmental concern was significantly and positively correlated with global self-worth for the total sample. Multiple regression analysis revealed that children's environmental attitudes were a significant component of environmental concern, with more pro-environmental attitudes being associated with greater environmental concern. Manifest anxiety was also found to be a component of environmental concern, with less anxiety being associated with greater concern. Finally, it was found that children with greater environmental concern were somewhat more worried about environmental problems, and were able to generate more ways that they could help save the environment. They also reported more ways that their parents could help save the environment.

Environmental Concern in School-Age Children

It is clear that both in and out of school, children today are being exposed, at many levels, to information about environmental problems such as oil spills, species extinction, and the destruction of the rain forest. What is not clear is the stressful impact on children of exposure to environmental problems. Many of today's newspapers and magazines convey anecdotal evidence suggesting that some children view information about environmental problems as a stressor. These reports suggest that some psychologists, parents, and educators are concerned that presenting information to children may cause them to become anxious, frightened and depressed. There is fear that today's children may lose hope and optimism about the future of the world, or feel that environmental problems are too large to solve. Despite these fears, there is little to no research on this topic. At present, we can only make assumptions about the impact of information about environmental problems on children's level of concern and stress, and about how individual differences in children's age, sex, attitudes and behaviors toward the environment, perceived competencies, and manifest anxiety might mediate this stress.

Previous research (Malkus & Musser, 1993; Szagun & Mesenholl, 1993; Szagun & Pavlov, 1993) has demonstrated connections between environmental attitudes and concern and known correlates of prosocial behavior (e.g., internal locus of control, higher perceived competence, empathy). This has led to an expansion of the definition of prosocial behavior beyond those voluntary actions intended to help or benefit others (Eisenberg & Mussen, 1989). The new definition includes prosocial actions directed at pets, animals, and environmental protection and conservation in the broadest sense (Fogel, Melson, & Mistry, 1986). These research findings have also led to the premise that children can feel positively about environmental issues and the role they can play in

helping the earth, and that these feelings are connected to feeling more positively about themselves, and more in control of other aspects of their lives.

In order to explore the question of whether information about environmental problems is a significant worry for school-age children, the present study assessed common non-environmental concerns of school-age children, and examined where environmental concerns fit within the framework of common childhood concerns. In keeping with the prosocial perspective, this study also examined the relationship between children's environmental concern and perceived competencies, specifically global self-worth. It was predicted that environmental concern would be positively correlated with perceived competencies. This study examined the relationship between environmental concern and grade, sex, environmental attitudes and behaviors, and manifest anxiety, in an attempt to determine whether any or all of these factors might serve as mediators of concern. It was predicted that older children would exhibit the highest levels of environmental concern. Finally, this study looked at the differences between children exhibiting the highest and lowest levels of environmental concern.

Method

Participants

Participants were 138 children (70 girls, 68 boys) from the first (n=37), third (n=49), and fifth (n=52) grades who attended an elementary school located in a Midwestern city. Children were primarily Caucasian and middle class. Letters describing the project and including the parents' consent form were sent home with all students in the first, third, and fifth grade. Only those children with parental permission participated.

Measures

Childhood Concerns Rank Order Task. The Childhood Concerns Rank Order Task (CCROT) measures children's concern about environmental problems relative to other common childhood worries (e.g., doing well in school). This 10-item rank order task was developed by the researcher to assess the degree to which children rank environmental problems as a concern relative to other childhood worries. The CCROT contains 3 environmental concerns (e.g., air and water pollution) and 7 non-environmental concerns (e.g., death and dying). Of the 7 non-environmental concerns, 5 were common to all three grades, and 2 were unique to each grade.

When the CCROT is administered, children are presented with the 10 concerns relevant to their grade, and asked to choose which concern worries them the most. Once that concern is chosen, it is removed from the list, and children are asked to choose their greatest worry from the remaining concerns. The procedure continues in this manner until all 10 concerns are ranked, from most to least concern (Complete information concerning the construction and administration of the CCRPT is available from the authors).

Children's Attitudes Toward the Environment Scale. The Children's Attitudes Toward the Environment Scale (CATES; Musser & Malkus, 1994) measures children's attitudes toward environmental issues. This 25-item questionnaire uses a format similar to the Self-Perception Profile for Children (Harter, 1985). Each item in the CATES describes two different groups of children. Examples of items on this scale are: "Some children turn the lights off when they leave a room but other children leave the lights on." and "Some children are excited about solar energy but other children are not excited about solar energy."

When the scale is administered, children are instructed to choose which of the two groups of children, described in the statements, they

are most like. Under each statement are two boxes (one large, one small). Children check the larger box if they feel that are a lot like the children described in the statement. The smaller box is checked if they feel they are only a little like the children described in the item. Items are scored such that "4" reflects the most pro-environmental answer and "1" reflects the least pro-environmental answer.

Self-Perception Profile for Children. The Self-Perception Profile for Children (SPPC), developed by Harter (1985) contains 36 items that measure self-esteem and perceived competence. Items can be grouped into six subscales: scholastic competence, social acceptance, physical appearance, behavioral conduct, athletic competence, and global self-worth. Items are scored such that "4" reflects the child's highest judgment of his/her competence, and "1" reflects the lowest judgment.

Children's Manifest Anxiety Scale. This 37-item scale (CMAS) was developed by Reynolds and Richmond (1978) to measure manifest anxiety in school-age children. Examples of items on this scale include: "I worry a lot of the time." and "I am nervous." Children are instructed to answer yes or no for each question. Twenty-eight items on the scale measure anxiety, while the remaining nine items are used to assess whether the child is answering truthfully. The 28 items are scored either 1 or 0, with 1 indicating anxiety, and 0 indicating no anxiety.

Children's Home Environmental Practices Inventory. The Children's Home Environmental Practices Inventory (CHEPI) is a 10-item checklist developed by the researcher to assess how frequently children and their families engage in common pro-environmental practices. Examples of items on this scale include: "Recycle cans, glass, or paper." and "Walk or ride bikes instead of riding in the car." Children are instructed to rate, on a three-point scale ranging from never/almost never to always/almost always, how often they or members of their family engage in the 10 behaviors listed. Each item on the CHEPI is

scored either 0 (little to no environmental behavior), 1 (some environmental behavior), or 2 (much to a lot of environmental behavior).

Procedure

Phase 1. In Phase 1 of the research, children were asked "What kinds of things do you worry about?" in a one-on-one session with the researcher. The researcher wrote down every response the children made during these sessions. Children who did not spontaneously mention an environmental concern were prompted with the question "Do you ever worry about things that are happening in the world?" If a child mentioned an environmental concern, the session was over. Children who still did not give an environmental concern were prompted "Do you ever worry about things that are happening in the environment?" If a child mentioned an environmental concern, the session was over. Children who still did not give an environmental concern were prompted "Do you ever worry about things that are happening to animals?" At this point the session was over, whether children mentioned an environmental concern or not.

Phase 2. During this phase, children completed the CCROT in a one-on-one session with the researcher, ranking all 10 items on the task from most to least concern.

Phase 3. In Phase 3 of the research, children completed written questionnaires in a group setting. Third and fifth graders completed the CATES, the CHEPI, the CMAS, and the SPPC. First graders completed the CATES and the CMAS. They were unable to complete the CHEPI or the SPPC.

Phase 4. During Phase 4, children who scored the highest (n=18) and lowest (n=16) in environmental concern participated in a semi-structured interview in a one-on-one session with the researcher.

Results

Spontaneous Mention of Environmental Concerns

When children were asked to report what they worried about, most did not spontaneously mention environmental concerns. Of the total sample, only 7.6% spontaneously mentioned an environmental concern. When prompted by the researcher with the question "Do you ever worry about things that are happening in the world?" 36.9% of the remaining sample mentioned an environmental concern. When prompted by the researcher with the question "Do you ever worry about things that are happening in the environment?" 33.7% of the remaining sample mentioned an environmental concern. Finally, when prompted by the researcher with the question "Do you ever worry about things that are happening to animals?" 10.9% of the remaining sample mentioned an environmental concern. Of the total sample, 10.9% never mentioned an environmental concern, even after receiving all 3 prompts.

Environmental Concern of Children

Mean scores of children's environmental concern were calculated based on the rankings of the 3 environmental items from the CCROT. It was found that environmental concern was about average with the mean score for the total sample = 4.99 (with 2 being the lowest and 9 being the highest). Concerns about family members getting hurt, and violence/crime ranked higher than the highest environmental concern for all three grades. For first and third graders, concerns about smoking/drugs also ranked higher than any environmental concerns, and for third and fifth graders, concerns about death and dying ranked higher than any environmental concerns. In addition, for third graders, concerns about family members getting sick ranked higher, and for fifth graders, concerns about personal injury ranked higher than any environmental concerns.

Relationship Between Environmental Concern and Grade and Sex

A 2 (sex) x 3 (grade) analysis of variance (ANOVA) was conducted with environmental concern as the dependent variable. A main effect was found for grade, F (2,127) = 3.30, $p < .04$. Contrary to predictions, first graders were significantly more concerned about the environment (M=5.69) than were third graders (M=4.73) and fifth graders (M=4.70). No significant main effects were found for sex, and there were no significant interactions.

Relationship Between Environmental Concern and Other Factors

Correlations were calculated to assess the relationship between children's environmental concern and environmental attitudes, environmental behaviors, and perceived competencies. It was predicted that environmental concern would correlate positively with all of these factors. These predictions were partially supported. For the total sample, environmental concern was significantly and positively correlated with global self-worth, r (82) = .25, $p < .05$. For fifth grade girls only, environmental concern was also significantly correlated with their environmental practices, r (22) = .60, $p < .005$, environmental attitudes, r (22) = .46, $p < .05$, and perceived behavioral conduct, r (22) = .44, $p < .05$.

Variance in Environmental Concern

Multiple regressions were run to determine which variables accounted for the most variance in environmental concern. The model which best explained children's environmental concern contained two variables: environmental attitudes and manifest anxiety, F (2, 111) = 3.05, $p < .05$. T-tests revealed that having more pro-environmental attitudes was associated with higher levels of environmental concern, t = 2.12, $p < .05$. Once the effects of environmental attitudes were controlled for, having less anxiety was associated with higher environmental concern, t = -1.65, $p < .10$. This model was found to explain more of the

variance when first graders were excluded, F (2, 78) = 4.86, $p < .01$. Once again, t-tests revealed that having more pro-environmental attitudes was associated with higher levels of environmental concern, t = 2.27, $p < .05$. Once the effects of environmental attitudes were controlled for, having less anxiety was associated with higher environmental concern, t = -2.62, $p < .01$.

Differences Between Children With High and Low Levels of Concern

Based on the results of a semi-structured interview, some differences between children evidencing the highest (M=7.91) and lowest (M=2.44) levels of environmental concern were found. It was predicted that children with higher levels of environmental concern would be more worried about the environment. This prediction was somewhat supported. A worry score was constructed for each child based on the answers to 8 questions asking how much and how often children worried about 4 environmental problems (e.g., air pollution), and a one-way ANOVA was run between high and low groups with amount of worry as the dependent variable. An F (1, 33) = 2.89, $p < .10$ was found, indicating a trend for children in the high group to be more worried about the environment than children in the low group. In addition, it was found that children in the high group mentioned more ways that children could help the environment (M=2.38) than children in the low group (M=2.31), they mentioned more ways that they helped the environment (M=2.35) than children in the low group (M=1.44), and they mentioned more ways their parents helped the environment (M=1.72) than children in the low group (M=1.44).

Discussion

This study looked at common non-environmental concerns of school-age children, and examined where environmental concerns fit within the framework of common childhood concerns. It was found that environmental concerns rank in the middle of other common concerns.

Concerns such as death/dying, violence and crime, and family members being hurt all take precedence over the highest environmental concerns for each grade. In addition, children rarely spontaneously mentioned environmental concerns when asked to talk about things they worry about. However, when prompted with the questions "Do you ever worry about things that are happening in the world? and "Do you ever worry about things that are happening in the environment?" almost two-thirds of the children mentioned at least one environmental concern. This suggests that children are concerned, but not *overly* concerned, about environmental problems. In contrast to the anecdotal evidence which suggests that children are anxious, frightened and depressed about environmental problems, this study presents a more balanced view of children's concerns. Yes, children are worried about the environment, but not to an extreme degree.

This study also examined the relationship between environmental concern and grade and sex. It was predicted that older children would be more concerned about the environment. This prediction was not supported. First graders were significantly more concerned about the environment than third or fifth graders. No significant sex differences in environmental concern were found. The finding that younger children are more concerned about the environment than older children has been demonstrated in other studies (Malkus & Musser, 1993; Szagun & Pavlov, 1993). Regardless of the age of the children studied, when there are age differences among participants, the youngest children consistently show greater degrees of concern and more pro-environmental attitudes. This is a relationship which deserves further investigation.

It was predicted that environmental concern would be positively correlated with environmental attitudes and behaviors. These predictions were supported for fifth grade girls, but not for any other

groups. It was also predicted that environmental concern would be positively correlated with perceived competencies. It was found that environmental concern was significantly and positively correlated with global self-worth for the total sample. This is consistent with previous studies which have looked at environmental concern from a prosocial perspective (Szagun & Mesenholl, 1993; Szagun & Pavlov, 1993). Concerning other factors beyond global self-worth, it is not clear why significant correlations were found for fifth grade girls only

Multiple regression analysis revealed that children's environmental attitudes were a significant component of environmental concern, with more pro-environmental attitudes being associated with greater environmental concern. Manifest anxiety was also found to be a component of environmental concern, with less anxiety being associated with greater concern. This suggests that environmental concern is in some ways separate from more generalized anxiety. It seems to be a "cooler" type of concern, in that reporting being a less anxious person, in general, was associated with higher pro-environmental concern.

Finally, it was found that children with greater environmental concern were somewhat more worried about environmental problems, and were able to generate more ways that they could help save the environment. They also reported more ways that their parents could help save the environment. Interestingly enough, children in the low environmental concern group reported that their parents *talked* to them about the environment more than children in the high environmental concern group. By contrast, children in the high environmental concern group reported more ways that their parents *actually worked* to help save the environment.

Overall, the results of this study indicate that children are worried about the environment, but not to an overwhelming degree. Children's concern about environmental problems seems to be balanced with more

common childhood concerns such as worries about family or violence and crime. In addition, results indicate that *lower* levels of anxiety are related to environmental concern, once children's attitudes toward the environment are taken into account. Finally, results demonstrate that environmental concern is positively related to global self-worth. Children who feel good about themselves also report higher levels of environmental concern. This is far removed from the picture of the environmentally concerned child as anxious, frightened, or depressed. This picture is a much more positive, balanced portrayal of children and their concerns.

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